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The Optimal Scope of Physicians' Duty to Protect Patients' Privacy

Ronen Avraham[†] &
Joachim Meyer^{††}

On March 24, 2015, French air traffic control lost radio contact with Germanwings Flight 9525 shortly after the aircraft reached a height of about 6,000 feet.¹ Andreas Lubitz, the co-pilot of the aircraft, had locked himself in the cockpit and was leading the aircraft on a fatal descent from its cruising altitude of 38,000 feet.² The pilot, who left Lubitz alone in the cockpit while taking a bathroom break, attempted to hack through the locked cockpit door with an axe while futilely screaming at Lubitz to open the door.³ Flight 9525 crashed in a remote area in the French Alps, killing all 150 people on board.⁴ Post-crash investigations revealed that Lubitz had been treated for severe depression and suicidal tendencies, and that Lubitz even took a break from the Lufthansa flight school to treat a serious depressive episode.⁵ In fact, Lubitz consulted forty-one

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1. Krishnadev Calamur, *As Night Falls, Officials Call off Search Operation for German Plane*, NPR (Mar. 24, 2015, 7:00 AM), <http://www.npr.org/sections/thetwo-way/2015/03/24/395011737/germanwings-a320-crashes-in-french-alps>.

2. Dan Bilefsky & Nicola Clark, *Fatal Descent of Germanwings Plane Was 'Deliberate,' French Authorities Say*, N.Y. TIMES (Mar. 26, 2015), <http://www.nytimes.com/2015/03/27/world/europe/germanwings-crash.html>.

3. Raphaëlle Logerot & Kate Millar, *The Germanwings Pilot Left for the Bathroom and Came Back Shouting 'Open the D--- Door'*, BUS. INSIDER (Mar. 29, 2015), <http://www.businessinsider.com/afp-alps-crash-captain-shouted-open-the-damn-door-2015-3>.

4. *Id.*

5. Associated Press, *Germanwings Flight 4U9525: Flight School Knew of Depressive Episode*, CBC (Mar. 31, 2015), <http://www.cbc.ca/news/world/germanwings-flight-4u9525-flight-school-knew-of-depressive-episode-1.3015984>. Lufthansa, Germanwings' parent company, knew of the serious depressive episode as Lubitz informed Lufthansa of the incident and that it had subsided in an email. *Id.* Lufthansa cleared Lubitz to fly after Lubitz passed

doctors over a five-year period, and visited doctors seven times in the month leading up to the crash.⁶ Investigators even found a torn-up sick note Lubitz received from a doctor that would have kept him off work the day of the crash.⁷ However this information was not disclosed to Lufthansa because of strict German medical confidentiality rules.⁸

Although the investigation into Flight 9525 continues, it is clear that third parties had evidence of Lubitz's battle with depression before Lubitz deliberately crashed the aircraft. Still, there remains the pressing question of who should have been warned about Lubitz's sensitive medical details. Certainly a warning about Lubitz's suicidal tendencies would have been useful to the pilot who left Lubitz alone in the cockpit, or to the rest of Flight 9525's flight crew. Should the families of Flight 9525's passengers win a lawsuit against Lubitz's doctors for not disclosing his medical history to the airline? Revealing a pilot's medical history under any disclosure policy could impose the unintended effect of disincentivizing the pilot's desire to seek treatment in the first place. A policy that would levy an outright ban on pilots who had any history of mental illness would invite a similar chilling effect. What the story of Germanwings Flight 9525 confirms is that the proper theoretical balance between patient privacy and third party safety can have disastrous, real-world implications.⁹

When discussing the optimal scope of the duty to protect patients' privacy, the literature compares two incommensura-

all his medical checks. *Id.*

6. William Horobin & Stacy Meichtry, *Germanwings Crash Probe Widens Beyond Co-Pilot Andreas Lubitz*, WALL ST. J. (June 11, 2015), <http://www.wsj.com/articles/germanwings-co-pilot-andreas-lubitz-feared-losing-vision-prosecutor-1434043118>.

7. Associated Press, *supra* note 5.

8. Richard Weiss et al., *Medical Privacy Rules Let Germanwings Co-Pilot Conceal Illness*, BLOOMBERG (Mar. 29, 2015), <http://www.bloomberg.com/news/articles/2015-03-29/medical-privacy-rules-let-germanwings-co-pilot-conceal-illness>.

9. An investigatory task force impaneled by European Commissioner for Transport Violeta Bulc has recommended looser medical privacy protections for all commercial aviators in response to the Germanwings crash. Robert Wall & Andy Pasztor, *Germanwings Task Force Urges Enhanced Screening of Pilots*, WALL ST. J. (July 18, 2015), <http://www.wsj.com/articles/germanwings-task-force-wants-enhanced-screening-of-pilots-1437127381>. German Medical and aviation associations have previously rejected calls to relax existing confidentiality rules. Caroline Copley, *Germanwings Crash Triggers Debate on Confidentiality Taboo*, REUTERS (Mar. 31, 2015), <http://www.reuters.com/article/us-france-crash-germany-confidentiality-idUSKBN0MR2CT20150331>.

ble interests: privacy and safety. Policymakers face a difficult task when trying to find an optimal solution, balancing these two, often conflicting, interests. For example, a major goal of the federal health privacy standards under the Health Insurance Portability and Accountability Act (HIPAA)¹⁰ was to ensure that health information is properly protected while allowing the use of such information to promote high-quality health research and care.¹¹ Critics point out that the HIPAA Privacy Rule is unsuccessful in reaching this benchmark: the Rule creates barriers to research which result in biased research samples while simultaneously failing to incorporate comprehensive patient privacy protections.¹² Thus HIPAA rules, though seeking an optimal balance between privacy and safety interests, fall short on both fronts. Similar privacy and safety trade-off debates arise in topics as diverse as the increased use of biometric surveillance technologies,¹³ to software system design,¹⁴ and to government data collection practices.¹⁵ As long as our society continues to value both interests, the debate is sure to attach itself to shifting technological, social, and political norms.

In this Article, we confront the trade-off between patient confidentiality and public safety as manifested in the legal duty to warn or report potentially harmful patient behavior. The incommensurability problem seems to plague the analysis of the

10. "The HIPAA Privacy Rule set[s] forth detailed regulations regarding the types of uses and disclosures of individuals' personally identifiable health information" by health plans, healthcare providers, and health care clearing-houses. INST. OF MED., *BEYOND THE HIPAA PRIVACY RULE: ENHANCING PRIVACY, IMPROVING HEALTH THROUGH RESEARCH* 1–2 (Sharyl J. Nass et al. eds., 2009), <http://www.nap.edu/read/12458/chapter/2>.

11. *Id.*

12. *See id.*

13. *See generally* Kevin W. Bowyer, *Face Recognition Technology: Security Versus Privacy*, IEEE TECH. & SOC'Y MAG., Spring 2004, at 15–16 (discussing the privacy and safety concerns involved in the use of facial recognition software in public areas).

14. *See generally* Golnaz Elahi & Eric Yu, *Modeling and Analysis of Security Trade-Offs—a Goal Oriented Approach*, 68 DATA & KNOWLEDGE ENGINEERING 579 (2009) (discussing the trade-off between user anonymity and user authentication and auditability in software system design).

15. *E.g.*, John McLaughlin, *NSA Intelligence-Gathering Programs Keep Us Safe*, WASH. POST (Jan. 2, 2014), http://www.washingtonpost.com/opinions/nsa-intelligence-gathering-programs-keep-us-safe/2014/01/02/0fd51b22-7173-11e3-8b3f-b1666705ca3b_story.html. The former acting CIA Director and 30-year veteran of the agency argues that information collected by the National Security Administration (NSA) does no more to affect privacy than information gathered by private companies, yet serves as a key tool in the counter-terrorism arsenal. *Id.*

two interests: what comparable rudiment do privacy and public safety share in the duty to warn or report context? We develop a model which solves this problem by finding the optimal balance between protecting patients' privacy (as a means to encourage patients to seek treatment, thus *reducing risk* in society) and warning third parties or the state (again, as a means to *reduce risk* in society).

Patients seeking effective medical treatment often depend on privacy. Without it, patients may prefer to avoid treatment, and their untreated condition may pose greater safety risks than the same condition when treated. Thus privacy and safety are not complementary, and increasing one will necessarily lower the other. However, there may be more complex relations between the two, where limiting privacy may also impair safety. Since we compare safety-safety rather than privacy-safety, we can hone in on an optimal balance of both the privacy and safety interest through an intuitive, objective, and applicable quantitative framework rather than just balancing the two interests to reach an arbitrary equilibrium. The safety-safety formulation thus avoids the difficulties inherent in the apples-to-oranges privacy-safety comparison.¹⁶

Our model shows that imposing an unqualified duty to report or warn might result in an *increase* in the dangerousness of the primary behavior society is concerned about, such as piloting, driving, or violent acts. Developing a formula not much more complicated than the Hand formula,¹⁷ we show how the chilling effect and the effectiveness of the medical treatment should be factors that courts consider when imposing a duty on medical professionals to report their patients to the state or enforcing a duty to warn third parties.¹⁸

16. See NEIL ROBINSON ET AL., SECURITY, AT WHAT COST? QUANTIFYING PEOPLE'S TRADE-OFFS ACROSS LIBERTY, PRIVACY, AND SECURITY 1–14 (2010), http://www.rand.org/content/dam/rand/pubs/technical_reports/2010/RAND_TR664.pdf (commenting on the difficulty of designing frameworks which allow scholars to quantify the extent which people may be willing to give up the right to privacy for greater safety).

17. See *United States v. Carroll Towing Co.*, 159 F.2d 169, 173 (2d Cir. 1947).

18. At a more general level, the model we propose here differs somewhat from most models developed in the context of law and economics. Most economic models adopt game theoretical approaches, computing equilibrium predictions for different legal settings. The approach we take resembles an engineering model. The idea is not to come up with exact predictions about individual actors' actions, but rather to specify the minimal conditions at which a solution will achieve the desired outcomes. Whether these conditions

Consider the following scenarios: In scenario (1), an epileptic individual has a seizure while driving, causing an accident and injuring another motorist. The injured motorist brings a tort action against the epileptic individual's doctor for negligently treating his epileptic patient, for example, by failing to warn him to not drive. The court holds that the doctor could potentially be held liable to the motorist (a third party). In scenario (2), a male patient of a university clinic reveals his intention to kill a specific woman to one of the university's psychologists. The psychologist warns the university police, but does not warn the woman. The patient, feeling betrayed by the psychologist, does not go back to therapy, and later kills the woman. The woman's parents bring a suit against the psychologist, and the court holds that the psychologist could be held liable for not warning the woman even though he was not negligent towards his patient. In scenario (3), a state statute imposes a duty on doctors to report pilots that have dangerous diseases such as heart diseases or severe depression.

Do these three scenarios have anything in common? Scenarios (1) and (2) deal with the problem known in tort law as "duty of care towards third parties." Scenario (1) deals with the question of whether a doctor should be held liable towards *unidentified* third parties who are victims of a dangerous patient when the doctor was only negligent towards his own *patient*. That was the question in the famous case of *Duvall*.¹⁹ Scenario (2) deals with the duty towards *identified* third parties (victims of the doctor's patient) when the doctor was *not* negligent towards his dangerous patient. That was the question in the famous case of *Tarasoff*.²⁰ Scenario (3) deals with the statutory requirement to report certain dangerous patients, such as Lubitz, to the state.

Despite the doctrinal differences, all three cases deal with a similar theoretical problem. Indeed, all three challenge us to think about the optimal scope of a medical provider's duty to

will be met or not will depend on a variety of factors, including the economic incentives of the different actors, the alternatives open for them, etc. Decision makers who have to decide on the implementation of certain legal policies can take these specifications of minimal conditions into account when considering whether the actions are likely to lead to the desired outcomes.

19. See *Duvall v. Goldin*, 362 N.W.2d 275, 276, 279 (1984) (addressing the doctor's potential negligence in failing to properly treat his patient for his epileptic seizures and failing to warn him not to drive).

20. *Tarasoff v. Regents of the Univ. of Cal.*, 551 P.2d 334, 340, 342-51 (Cal. 1976).

protect their patients' privacy on the one hand, and their conflicting duty to report their dangerous patients to third party victims (whether identified like in *Tarasoff*, or unidentified like in *Duval*) or to the state on the other hand.

The goal of this paper is to conceptualize the major relevant considerations for defining the optimal scope of the duty to protect patients' privacy in light of the conflicting duties to warn third parties or to report dangerous patients to the state.

Conventional wisdom held by courts and scholars alike allows doctors to violate their patients' confidentiality and imposes a duty towards third parties based primarily on the notion of foreseeability, or reasonable anticipation that harm or injury is a likely result of the patient's words or acts. The more likely the harm is to occur, the more physicians are expected to break confidentiality, especially if the victim is identifiable. However, as we show in this paper, there are three other critical considerations to which many courts and legal commentators have not given enough thought. The first consideration is the chilling effect such a duty will have on patients' incentives to seek treatment from physicians and psychiatrists. Second, and importantly, is the effect that the lack of medical treatment will have on the riskiness of the primary behavior of concern (e.g. driving, killing, and flying). Third, and relatedly, is the effectiveness of the medical treatment in improving the patient's condition and its impact on the primary behavior of concern.

We present a model that delivers a very simple yet overlooked intuition: the optimal scope of the duty to warn third parties, or to report certain patients to the state, should take into account not only (1) the probability of harm to others by the patient, but also (2) the likely success of treatment by doctors and the treatment's impact on the behavior of concern, as well as (3) the chilling effect such a duty will have on patients seeking help, and (4) the impact of that effect on the primary behavior of concern. We show that, holding all else equal, the more effective the therapy or treatment is in reducing patients' riskiness, relative to their riskiness without treatment, and the larger the chilling effect is, the *less* society should impose a duty to report or warn. Somewhat counterintuitively, even if the treatment is only partially successful in reducing patients' riskiness and still leaves the patients in a psychologically dangerous or physically unhealthy state, it may still be better not to

impose a duty to warn on physicians if the chilling effect is too great.²¹

Our model has important implications both for torts and reporting statutes. With respect to tort law, our model provides courts and legal commentators with a simple formula—not much more complicated than the Hand formula—on how to think about the optimal duty owed by physicians. What is now done in a somewhat arbitrary and erratic way, we propose to formalize and structure. The major insight is that the optimal scope is context dependent and might therefore change over time with advances in medicine. For example, because the current effectiveness of treating dementia is very limited, while the increase in the risk for accident involvement is substantial (between two- to eight-fold greater for elderly drivers with mild to moderate dementia versus those not demented),²² it makes sense to impose a duty to warn or report on health providers. By contrast, for seizure disorders, such as epilepsy, the treatment is very effective. The risk of accidents involving emergency department visits when the person adheres to the prescribed anti-epileptic drug treatment is reduced by one-half.²³ In that situation, to promote road safety, it might well be better to *not* impose a duty on the provider.

Moreover, the duty to report or warn might depend on the stage of the disease, the probability of its cure, and its impact on the primary behavior's risks. Thus, doctors might not have a duty to report or warn third parties when they treat patients that are in the early stages of HIV, because then the disease is arguably more treatable, and it is beneficial from a social welfare perspective to not chill patients from seeking help. By contrast, the duty might well be imposed in later stages because the chilling effect from reporting during those stages is not as troubling.

One corollary from the model is that the more uncertainty

21. Not taking into account the costs of reporting or warning in terms of their impact on the primary behavior of concern and only focusing on the probability of harm is conceptually similar to the mistake scholars and courts made before acknowledging the costs (B) component in Learned Hand's famous BPL negligence formula.

22. Laura B. Brown & Brian R. Ott, *Driving and Dementia: A Review of the Literature*, J. GERIATRIC PSYCHIATRY & NEUROLOGY, 232, 232 (2004).

23. E. Faught et al., *Nonadherence to Antiepileptic Drugs and Increased Mortality: Findings from the RANSOM Study*, 71 NEUROLOGY 1572, 1575 (2008) (finding that nonadherence to antiepileptic drugs was associated with a 50% higher incidence of emergency department visits versus adherent behavior).

surrounds the success of the therapy, as is, for example, usually the case in psychotherapy, the more favorable it becomes for medical providers to not be *required* to report, but instead be afforded *discretion* as to whether or not to report their patients to the state. The reasoning is that providers might well be in the best position to weigh both the costs and the benefits of reporting in terms of its impact on the primary behavior of concern. This insight has significant implications for the debate about the liability of physicians in Lubitz's case and in other important instances such as not reporting child abuse.

Our paper is divided into five parts. Part I details the duty imposed on doctors to warn or protect both identified and unidentified third parties derived from tort law. Part II discusses a physician's duty to report patients who are HIV positive. Part III outlines the state-imposed duty to report individuals with certain serious, driving-impairing conditions (usually through reporting statutes) on physicians. Part IV reviews empirical evidence on how consequences for reporting can have chilling effects on reporting in the first place. Part IV presents a model for determining the optimal scope of the duty to warn or report. Part V concludes.

TORT LAW: THE DUTY TO WARN OR PROTECT THIRD PARTIES FROM "DANGEROUS" PATIENTS

The Restatement (Third) of Torts states that "[a]n actor in a special relationship with another owes a duty of reasonable care to third parties with regard to risks posed by the other that arise within the scope of the relationship."²⁴ One such special relationship that gives rise to this duty is that of "a mental-health professional with patients."²⁵ After the seminal *Tarasoff* decision, the Restatement (Third)²⁶ recognized and adopted the duty imposed on doctors.

24. RESTATEMENT (THIRD) OF TORTS: LIAB. FOR PHYSICAL & EMOTIONAL HARM § 41(a) (AM. LAW. INST. 2012).

25. *Id.* § 41(b)(4).

26. The Restatement (Third) outlines the history of the duty to warn announced in the Restatement (Second):

Section 315 of the Second Restatement of Torts stated the general proposition that there is no affirmative duty to control the conduct of a third party so as to prevent the third party from causing harm to another. Subsection (a) provided an exception to that general rule based on a special relationship between the actor and the third party. Subsequent Sections elaborated on the relationships that were sufficient to impose such a duty [§§ 316, 317, 319] . . . [t]his Section replaces [these sections] and includes an additional relationship [for

Tarasoff was a case in which a patient of a hospital killed a woman he was infatuated with after confiding his intention to kill her to one of the hospital's psychologists.²⁷ Although the doctor in *Tarasoff* informed the police of his patient's intentions, the police did not detain him. The doctor, however, did not warn the victim or any member of her family. Feeling betrayed by the psychologist, the patient did not go back to therapy and later killed the woman. The victim's parents alleged that her death was proximately caused by the psychologist's negligence in failing to warn the victim or others. The court held that therapists owe identified third parties a duty to exercise reasonable care to protect them from serious violent danger when the therapist determines, or pursuant to relevant professional standards should have determined, that the therapist's patient poses a serious risk of harm to said third party of such danger. That duty is usually fulfilled by warning the third party about this risk ("duty to warn").²⁸

Justice Clark dissented and recognized the crucial policy considerations that weigh against imposing a duty on psychologists and other mental health professionals in such situations.²⁹ Clark warned that such a duty "[w]hile offering virtually no benefit to society . . . will frustrate psychiatric treatment, invade fundamental patient rights and increase violence."³⁰ Clark's dissent lamented the effect such a duty would have on the doctor-patient relationship and the patient's willingness to seek treatment, stating that "without substantial assurance of confidentiality, those requiring treatment will be deterred from seeking assistance."³¹ Alas, only a few other commentators and

mental-health professional and patient].

Id. at cmt. a.

27. *Tarasoff v. Regents of the Univ. of Cal.*, 551 P.2d 334, 339 (Cal. 1976). See Fillmore Buckner & Marvin Firestone, "Where the Public Peril Begins": 25 Years After *Tarasoff*, 21 J. LEGAL MED. 187, 192-96 (2000) for a detailed description of the facts of the case.

28. *Tarasoff*, 551 P.2d at 340, 350-51 ("The discharge of this duty may require the therapist to take one or more of various steps, depending upon the nature of the case. Thus it may call for him to warn the intended victim or others likely to apprise the victim of the danger, to notify the police, or to take whatever other steps are reasonably necessary under the circumstances.").

29. *Id.* at 355, 358 (Clark, J., dissenting).

30. *Id.* at 358 ("Overwhelming policy considerations weigh against imposing a duty on psychotherapists to warn a potential victim against harm.").

31. *Id.* at 359.

scholars have also discussed the possible negative effects such a duty would have on effective mental health treatment.³²

Following *Tarasoff*, twenty-nine states now *require* mental health professionals to warn or protect potential victims about credible threats from their patients.³³ Sixteen states and D.C. make the duty to protect or warn discretionary (these states “allow” mental health care professionals to disclose potential danger to third parties).³⁴ Four states do not impose any duty to protect or warn on mental health care professionals.³⁵

Some courts also began to expand *Tarasoff*'s holding in different ways.³⁶ One of the broadest interpretations was announced in the case of *Lipari v. Sears, Roebuck & Co.*, a case in which people in a crowded nightclub were attacked with a shotgun by a psychiatric patient without any advance warning.³⁷ The patient was receiving psychiatric treatment from the hospital and purchased a gun while he was still receiving treatment.³⁸ Shortly after purchasing the gun, the patient removed himself from treatment against the advice of his doctors and shot into the crowded nightclub killing a man and injuring his wife.³⁹ The court in *Lipari* allowed the plaintiffs to proceed in their case against the patient's hospital, thereby rejecting the *Tarasoff* limitation of only having a duty towards *identifiable* victims.⁴⁰ The court seemed to impose a duty on therapists to predict dangerousness, and in addition a duty to protect society from “dangerous” patients.

The court in *Duvall* (mentioned above) similarly extended *Tarasoff* to include a duty to protect the general public (not just

32. See, e.g., Buckner & Firestone, *supra* note 27, at 200–13 (discussing the various scholars and some courts that criticized the duty imposed on doctors and how the scope of such duty has been greatly expanded to include not only mental health care professionals but other doctors as well).

33. *Mental Health Professionals' Duty To Warn*, NAT. CONFERENCE ST. LEGISLATURES (Sept. 28, 2015), <http://www.ncsl.org/research/health/mental-health-professionals-duty-to-warn.aspx>.

34. *Id.*

35. *Id.*

36. See Buckner & Firestone, *supra* note 27, at 200 (listing the broadest court cases and noting that “[t]he duty to protect, which was enunciated in the *Tarasoff* case, was interpreted more broadly by several courts that purported to follow *Tarasoff*, so that the duty to protect was not uniform throughout the United States”).

37. See *id.*

38. *Lipari v. Sears, Roebuck & Co.*, 497 F. Supp. 185, 187 (D. Neb. 1980).

39. *Id.*

40. *Id.* at 191.

specifically identified potential victims) from potentially “dangerous” patients.⁴¹ *Duvall* went even further than *Lipari* in two ways. First, it imposed a duty on mental health care professionals to recognize other general medical conditions such as epilepsy (not just dangerous propensities of their patients based on psychiatric problems) and to protect the public from such individuals.⁴² Second, it imposed a duty on mental health care professionals towards unidentified third parties who were victims of the patient’s negligent (or even faultless) behavior and not just of the patient’s criminal behavior. However, while some courts have extended *Tarasoff*, others have limited its reach.⁴³

THE SPECIAL CASE OF HIV

Patients diagnosed with either AIDS or HIV raise interesting dilemmas regarding both the duty to warn third parties and the duty to report to the state. As will be explained shortly, the

41. *Duvall v. Goldin*, 362 N.W.2d 275, 278–79 (1984).

42. See *id.* (imposing a duty on the psychiatrist to “treat” his patient’s epilepsy). The court’s position seems to be contrary to the position paper issued by the American Psychiatric Association (APA) in 1993, in which the APA addressed the “role of psychiatrists in assessing driving ability.” Kristen Snyder & Joseph D. Bloom, *Physician Reporting of Impaired Drivers: A New Trend in State Law?*, 32 J. AM. ACAD. PSYCHIATRY LAW 76, 78 (2004) (discussing *Position Statement on the Role of Psychiatrists in Assessing Driving Ability*, 152 AM. J. PSYCHIATRY 819, 819 (1995) [hereinafter “*Position Statement*”]). In this position paper, the APA asserted that although psychiatric patients “may experience symptoms that can interfere with their ability to operate a motor vehicle safely . . . psychiatrists have no special expertise in assessing the ability of their patients to drive . . . [and] should not be expected to make such assessments in the course of clinical practice.” *Position Statement, supra*.

43. See, for example, *Estate of Witthoeft v. Kiskaddon*, 733 A.2d 623, 626–30 (1999), in which the court held that an ophthalmologist did not have a duty to another motorist that was killed in an accident involving his patient. The court stated that the appellant’s decedent was simply not a foreseeable victim that the court would recognize. *Id.* at 630. The court added that it would refuse to stretch foreseeability beyond the point of recognition as doing so would make liability endless. *Id.* The court warned that to allow liability in the case make physicians absolutely liable for the vicarious acts of their patients. *Id.*; see also *Brady v. Hopper*, 570 F. Supp. 1333, 1337 (D. Colo. 1983), *aff’d*, 751 F.2d 329 (10th Cir. 1984) (restricting a therapist’s duty to the “specific threats to specific persons” rule); *Hasenei v. United States*, 541 F. Supp. 999, 1010 (D. Md. 1982) (limiting the duty to protect third parties to only instances where the therapist had the right to commit his patient); *Estate of Votteler v. Heltsley*, 327 N.W.2d 759, 762 (Iowa 1982) (determining that the *Tarasoff* ruling supports the conclusion that a duty should not be imposed when the foreseeable victim is already aware of the danger). See generally Buckner & Firestone, *supra* note 27, at 200–13 for a full discussion of various examples in which courts have both expanded and limited *Tarasoff*.

special interest stems from the fact that AIDS is a disease that advances in stages, and the efficacy of treatment declines significantly in each consecutive stage.⁴⁴

All fifty states require physicians to report patients that have been diagnosed with either AIDS or HIV to local or state health departments.⁴⁵ While states previously differed in the requirements for HIV reporting (some requiring name-based⁴⁶ reporting, some requiring only code-based⁴⁷ reporting),⁴⁸ all

44. See CTRS. FOR DISEASE CONTROL AND PREVENTION, 17 HIV SURVEILLANCE REPORT NO. 3, PT. A, at 9–10 (2012), http://www.cdc.gov/hiv/pdf/statistics_2010_HIV_Surveillance_Report_vol_17_no_3.pdf. “The advent in 1996 of potent combination antiretroviral therapy (ART), sometimes called HAART (highly active antiretroviral therapy) or cART (effective combination antiretroviral therapy), changed the course of the HIV epidemic.” CTRS. FOR DISEASE CONTROL AND PREVENTION, BACKGROUND BRIEF ON THE PREVENTION BENEFITS OF HIV TREATMENT 1 (2013), <http://www.cdc.gov/hiv/prevention/research/tap/>. “These ‘cocktails’ of three or more antiretroviral drugs used in combination gave patients and scientists new hope for fighting the epidemic and have significantly improved life expectancy—to decades rather than months.” *Id.* Previously, no one had conducted a randomized clinical trial to show that that treating HIV-infected persons also significantly reduced their risk of transmitting the infection to sexual and drug-using partners who didn’t have the virus. *Id.*

That changed in 2011 with the publication of findings from the HIV Prevention Trials Network (HPTN) 052 study, a randomized clinical trial designed in part to evaluate whether the early initiation of ART can prevent the sexual transmission of HIV among heterosexual couples in which one partner is HIV-infected and the other is not. This landmark study validated that early HIV treatment has a profound prevention benefit: results showed that the risk of transmitting HIV to an uninfected partner was reduced by 96%.

Id.

45. Laura Lin & Bryan A. Liang, *HIV and Health Law: Striking the Balance Between Legal Mandates and Medical Ethics*, AM. MED. ASS’N J. ETHICS (Oct., 2005), <http://virtualmentor.ama-assn.org/2005/10/hlaw1-0510.html>.

46. “Name-based reporting” requires the physician to report the actual name of the HIVP patient. *See id.*

47. “Code-based reporting” simply assigns a certain code to each HIVP patient instead of using their actual name. *See id.*

48. *See id.* (describing the pre-Ryan White CARE Act 2006 amendment status of HIV state reporting systems in which “forty-three state . . . health departments . . . implemented confidential name-based HIV reporting, while approximately 14 other state and local health departments use[d] code-based or name-to-code reporting methods”). The Ryan White Comprehensive AIDS Resources Emergency (CARE) Act provided states funding for individuals affected by AIDS/HIV. *See* Ryan White Comprehensive AIDS Resources Emergency Act of 1990, Pub. L. No. 101–381, 104 Stat. 576 (1990) (codified as amended in scattered sections of 42 U.S.C. § 300 et seq. (2012)), <https://www.gpo.gov/fdsys/pkg/STATUTE-104/pdf/STATUTE-104-Pg576.pdf>. The Act was amended in 2006, changing the manner in which states were designated for federal funding; giving states that did not have a name-based system of HIV

states have now moved to a name-based reporting system.⁴⁹ No state takes the stage of the HIV into account in their reporting requirements: all states require reporting HIV at any stage when it is detected.⁵⁰ Despite the trend towards name-based reporting, the arguments against such reporting did not escape some states' eyes. States that were opposed to name-based reporting systems, such as California, did not want to impose name-based reporting because the states "were concerned that reporting names might discourage people from testing, particularly the people at highest risk for HIV infection."⁵¹ Other states "feared that reporting names would deter treatment, since reporting also occurs when clients access medical care."⁵² As the American Medical Association (AMA) notes:

Public policy encourages high-risk groups to submit to HIV testing because those individuals who know they are HIV positive are more likely to seek treatment and take precautions that may prevent transmission of the virus. However, if HIV-related information is readily disclosed by health care providers, individuals may become more reluctant to seek testing.⁵³

While one study conducted in New York seems to indicate that HIV name-based reporting does not affect patients' decisions to seek treatment, there is little research in this area, and the effects on patients of reporting at different stages of HIV have not been well documented or studied thus far.⁵⁴

status reporting a substantially less amount of federal funding. *See* Ryan White HIV/AIDS Treatment Modernization Act of 2006, Pub. L. No. 109-415, 120 Stat. 2767 (2006) (codified in scattered sections of 42 U.S.C. § 300 et seq. (2012)), <https://www.gpo.gov/fdsys/pkg/PLAW-109publ415/pdf/PLAW-109publ415.pdf>.

49. *See State HIV Laws*, CTRS. FOR DISEASE CONTROL AND PREVENTION, <http://www.cdc.gov/hiv/policies/law/states/> (last visited Jan. 12, 2016). There are twenty-five states that also have "HIV-specific criminal laws." *See HIV-Specific Criminal Laws*, CTRS. FOR DISEASE CONTROL AND PREVENTION, <http://www.cdc.gov/hiv/policies/law/states/exposure.html> (last visited Jan. 12, 2016).

50. *See State HIV Laws*, *supra* note 49.

51. HIV NAME-BASED REPORTING, 15 HIV COUNSELOR PERSPECTIVES NO. 3, at 1, 1 (2006), <http://ahppublications.files.wordpress.com/2011/06/persp1006.pdf>.

52. *Id.*

53. Lin & Liang, *supra* note 45.

54. *See* James M. Tesoriero et al., *The Effect of Name-Based Reporting and Partner Notification on HIV Testing in New York State*, 98 AM. J. PUB. HEALTH 728 (2008) (finding that "[h]igh risk individuals had limited awareness of the reporting and notification law, and few cited concern about named

With respect to the tort duty to warn, several states have declined to impose *Tarasoff's* "duty to warn" on physicians in HIV-patient cases. For example, Iowa has adopted a statute explicitly stating that, "[t]his subsection *shall not be interpreted to create a duty to warn* third parties of the danger of exposure to HIV through contact with a person who tests positive for HIV infection."⁵⁵ Additionally, both Alabama and Arizona have statutes that shield doctors from liability both if they do and do not disclose an HIV-positive patient's status to their partners.⁵⁶

One arguable exception is *Reisner v. Regents of University of California*, an HIV-patient case, in which the California Court of Appeals purported to extend *Tarasoff's* holding to a case involving HIV disclosure.⁵⁷ In *Reisner*, the plaintiff sued his girlfriend's physician for negligence because the physician did not inform the patient that the blood used in a transfusion conducted on his girlfriend five years before was contaminated with HIV when the physician found out (a day after the surgery).⁵⁸ The plaintiff, who was intimate with the patient about three years after the surgery, contracted HIV.⁵⁹ The plaintiff claimed that the physician owed him a duty to warn his girlfriend, the physician's *patient*, that the blood had HIV.⁶⁰ However, this situation is different from *Tarasoff* and in fact quite similar to *Duval*. While in *Tarasoff*, the Court held that the physician owed a third party a duty to warn *the third party herself* about his patient's dangerous propensities, even though the physician was not negligent towards the patient, in *Reisner* (and *Duval*) the court held that the physician owed a third party a duty to warn the physician's own *patient* about his pa-

reporting as a reason for avoiding or delaying HIV testing. HIV testing levels . . . among those who tested HIV positive were not affected by the law").

55. IOWA CODE § 141A.5(2)(c)(2) (2015) (emphasis added).

56. The Arizona statute states: "This section does not impose a duty to disclose information. A doctor of medicine is not civilly or criminally liable for either disclosing or not disclosing information." ARIZ. REV. STAT. § 32-1457(A) (2015). The Alabama statute states "No physician . . . shall incur any civil or criminal liability for revealing or failing to reveal confidential information within the approved rules." ALA. CODE § 22-11A-38(f) (2015).

57. 37 Cal. Rptr. 2d 518, 520 (Cal. Ct. App. 1995) ("Tarasoff dictates the result in our case by holding that the doctors duty includes duty to warn 'others likely to apprise the victim of the danger . . . or take whatever . . . steps are reasonably necessary under the circumstances.'").

58. *Id.* at 519.

59. *Id.*

60. *Id.* at 520.

tient's dangerous condition. Other cases, similar to *Reisner*, have held the same.⁶¹

Indeed, there have not been any cases—known to us—where a court has imposed liability on a physician for failing to warn a third party whom he knows may have been exposed to HIV by his patient if the patient himself has already been notified.⁶² This interpretation of the *Tarasoff* duty is unique to HIV

61. *Id.*; see also *Estate of Amos v. Vanderbilt Univ.*, 62 S.W.3d 133, 138 (Tenn. 2001) (“The duty contemplated here is not one to warn [the affected third party] himself of [the patient’s] exposure to HIV but to warn [the patient] so that she might take adequate precautions to prevent transmission of the disease to [a third party] and their child.”); *C.W. v. Cooper Health System*, 906 A.2d 440, 451 (N.J. Super. Ct. App. Div. 2006) (“The question is not whether defendants have a duty to notify [the affected party] directly of [the patient’s] HIV test results. The duty of care to a third party . . . requires the health care provider to take all reasonable measures to notify the patient of the results of his HIV test Thus, the harm to [the affected party] flows from [the patient’s] ignorance of his own health status, not from [the hospital’s] failure to notify [the affected party] of [the patient’s] medical condition.”).

62. See Lin & Liang, *supra* note 45 (“[T]o date, attempts to create a duty for physicians to protect endangered third parties in HIV cases have been unsuccessful”); Thomas Bradley et al., *Legal Issues Associated with Disclosure of Patient’s HIV-Positive Status to Third Parties*, THE BODY, <http://www.thebody.com/content/art33211.html> (last visited Jan. 13, 2016) (similarly noting that “[i]n addition to statutory regulation on this issue, providers should be aware that there may be a common law legal duty imposed on them to protect third parties when their patients refuse to notify their contacts of their HIV-positive status. Currently, no such duty has been firmly established by law.” (emphasis added)); see also *Santa Rosa Health Care Corp. v. Garcia*, 964 S.W.2d 940, 944 (Tex. 1998) (“[The hospital] had no statutory or common-law duty to notify [the patient’s wife] that she was at risk of contracting the HIV virus from [the patient].”); *Lemon v. Stewart*, 682 A.2d 1177, 1181 (Md. Ct. Spec. App. 1996) (“None of the cases that we cited for that proposition involved a duty to inform a third person that the patient was HIV-positive or had AIDS No case has been cited to us imposing a common law duty on the part of a health care provider to inform persons other than the provider’s patient of the patient’s positive HIV status, and we have found none.”). Note also *N.O.L. v. District of Columbia*, 674 A.2d 498 (D.C. Ct. App. 1995), a case in which a husband brought suit against D.C. for failing to notify him that his wife tested positive for HIV. The court held that “the District (*i.e.*, its employees at Saint Elizabeth’s Hospital) owed appellant no duty to disclose his wife’s HIV-positive test results. On the contrary, the hospital staff owed a duty to appellant’s wife to refrain from disclosing that information to *anyone*, including her husband, without her written consent (or court order).” *Id.* at 499 (citing to D.C. Code § 6-117(b)(1) (1995)). See also *Lemon*, 682 A.2d at 1178, a case in which several of the patient’s family members and friends who had “personal contact with” the patient brought suit against patient’s physician for his failure to notify plaintiffs of patient’s HIV-positive status. The court held the physician did not owe patient’s family and friends a duty to inform them of patient’s HIV status. *Id.* at 1184–85 (“There is no doubt that [the physician] had a duty, under common law and by statute, to inform [the patient] of his positive HIV status The issue is whether appellants can base their causes of action on the breach of a

cases. In these instances, courts have considered the importance of privacy to outweigh the other interests—presumably since those with HIV are less likely to act against third parties with malice as a result of their condition, and are not likely to place others in immediate fatal danger, as we will see in the next section.

STATE STATUTORY LAW AND DOCTORS' DUTY TO REPORT IMPAIRED DRIVERS

Many states have various laws requiring physicians to report to the state people whose medical conditions might put others in danger, such as pilots, ship captains, or pedophiles.⁶³ For simplicity this section focuses on drivers, although similar considerations apply in the other cases as well. Indeed, most states have enacted laws requiring physicians to report individuals with certain serious medical conditions that will impair their driving to the state's respective vehicle or motor departments.⁶⁴ For example, California requires physicians to report only those medical conditions that are "characterized by lapses of consciousness."⁶⁵ Oregon requires physicians to report individuals whose "cognitive or functional impairment affects that person's ability to safely operate a motor vehicle."⁶⁶ Nevada's

duty to [the patient]. We conclude that they cannot.").

63. See Fred S. Berlin et al., *Effects of Statutes Requiring Psychiatrists To Report Suspected Sexual Abuse of Children*, 148 AM. J. PSYCHIATRY 449, 450–51 (1991).

64. See Lee Black, *Health Law: Physicians' Legal Responsibility to Report Impaired Drivers*, 10 VIRTUAL MENTOR 393, 393–94 (2008); see also Snyder & Bloom, *supra* note 42, at 77–78 (discussing some of these state laws). For examples of statutes concerning a physician's duty to report drivers with certain impairing medical conditions, see CAL. HEALTH & SAFETY CODE § 103900 (2015); COLO. REV. STAT. § 42-2-112 (2015); MONT. CODE ANN. § 37-2-311 (2015); NEV. REV. STAT. § 483.800 (2015); ORE. REV. STAT. § 807.710 (2013); UTAH CODE ANN. § 53-3-303 (2015). The American Medical Association's (AMA) Ethical and Judicial Affairs Council has also issued an opinion containing several recommendations for physicians and their duty to report patients with serious medical, driving-impairing conditions. Council on Ethical and Judicial Affairs, *Opinion 2.24: Impaired Drivers and Their Physicians*, AM. MED. ASS'N, <http://www.ama-assn.org/ama/pub/physician-resources/medical-ethics/code-medical-ethics/opinion224.page?> (last visited Jan. 13, 2016). The opinion states that "[p]hysicians should assess patients' physical or mental impairments that might adversely affect driving abilities" and that "[t]he purpose of [the] report is to articulate physicians' responsibility to recognize impairments in patients' driving ability that pose a strong threat to public safety and which ultimately may need to be reported to the Department of Motor Vehicles." *Id.*

65. CAL. HEALTH & SAFETY CODE § 103900(a) (2015).

66. ORE. REV. STAT. § 807.710(2)(a) (2013).

statute provides that “hospitals, medical clinics, and similar institutions which treat persons who are blind, night-blind or whose vision is severely impaired” must report such persons to the state.⁶⁷ Both Montana and Minnesota’s statutes, on the other hand, are more flexible and make reporting discretionary. For example, the Montana statute states that a “physician who diagnoses a physical or mental condition that, in the physician’s judgment, will significantly impair a person’s ability to safely operate a motor vehicle *may voluntarily* report” such an individual.⁶⁸

The situation bares the characteristics of a social dilemma in the sense that there is a conflict between the interests of an individual and the interests of the group to which the individual belongs. Society may prefer that people with medical problems that negatively affect road safety not drive, because they may endanger themselves or others. The main concern, however, is the chilling effect: drivers who are worried that they may have a medical problem that will cause them to lose their driver’s license may choose not to report that problem to their physician. Consequently, the medical problem will remain untreated, possibly leading to even greater safety problems, including increased morbidity and mortality. Of course, whether the chilling effect is substantial is an empirical question, which the next section discusses.

SOME EMPIRICAL EVIDENCE ON CHILLING EFFECTS

Evidence suggests that people may fail to report a medical problem if they believe that reporting the problem will result in negative consequences for them. For instance, there is ample evidence that pilots who have to fill out a medical report to renew their pilot license hide information about their medical problems. In an early study, postmortem toxicology analyses of general aviation pilots showed forty-eight cases with possibly incapacitating conditions: thirteen cardiovascular (three reported), seven neurological (none reported), twenty-eight psychiatric (none reported).⁶⁹ More recently, in a sample of 40,000

67. NEV. REV. STAT. § 483.800 (2015).

68. MONT. CODE ANN. § 37-2-311(1) (2015) (emphasis added); *see also* MINN. STAT. § 171.131 (2015).

69. OFFICE OF AVIATION MED., FED. AVIATION ADMIN., REPORT NO. DOT/FAA/AM-94/14, UNREPORTED MEDICATIONS USED IN INCAPACITATING MEDICAL CONDITIONS FOUND IN FATAL CIVIL AVIATION ACCIDENTS 2 (1994), https://www.faa.gov/data_research/research/med_humanfacs/oamtechreports/1990s/media/AM94-14.pdf.

airmen certificate-holders, the Inspector General found more than 3,200 airmen holding current medical certificates while simultaneously receiving Social Security benefits, including those for medically disabling conditions.⁷⁰

Fear of losing one's driving license is another concern which may lead people to refrain from seeking therapy.⁷¹ The problem also extends to commercial drivers who rely on their licenses for their careers and thus have an added incentive to refrain from reporting conditions. Data from a study of drivers suffering from sleep apnea led the lead researchers to hypothesize that commercial drivers may be less likely to report their sleepiness in order to protect their job.⁷² A similar problem exists in mental health. Data show that about twenty-five percent of psychotherapy clients drop out after a report is made, without accounting for those who psychologically drop out and close down (this figure came from agency psychotherapy and does not account for private practice).⁷³ Those who do remain in treatment after a report is made often become guarded and lose trust in their therapist, requiring several weeks or more to repair the fragile relationship.⁷⁴

The chilling effect of mandatory reporting laws has been specifically noted in research related to child abuse. For example, on July 1, 1988, Maryland's amendment to a statute requiring reporting of child sexual abuse disclosed by adult patients seeking treatment became effective.⁷⁵ The rate of disclosure at a particular Maryland clinic between January 1, 1984 and July 1, 1988, when there was no duty to report re-

70. *Falsification of FAA Airman Medical Certificate Applications by Disability Recipients: Hearing Before the Subcomm. on Aviation of the H. Comm. on Transp. and Infrastructure*, 110th Cong. 2 (2007) (statement of Calvin L. Scovel, III, Inspector General, U.S. Department of Transportation), https://www.oig.dot.gov/sites/default/files/SAFE_PILOT_Testimony_july17.pdf.

71. See Am. Diabetes Ass'n, *Diabetes and Driving*, 35 DIABETES CARE S81, S84 (2012) (noting reluctance to seek treatment due to fear of losing one's license in the context of mandated physician reporting); M.C. Salinsky et al., *Epilepsy, Driving Laws, and Patient Disclosure to Physicians*, 33 EPILEPSIA 469, 470 (1992) (finding that patients with epilepsy may not report seizures for fear of losing their license to drive).

72. See *Commercial Drivers Could Be Understating Sleep Apnea Symptoms for Fear of Losing Their License*, SCI. DAILY (Aug. 26, 2012), <http://www.sciencedaily.com/releases/2012/08/120826143352.htm>.

73. Murray Levine, *A Therapeutic Jurisprudence Analysis of Mandated Reporting of Child Maltreatment by Psychotherapists*, 10 N.Y.L. SCH. J. HUM. RTS. 711, 730 (1993).

74. See *id.* at 732–33.

75. Berlin et al., *supra* note 63, at 450.

lapses during treatment, was around two per month.⁷⁶ Between July 1, 1988 and the end of 1990 (when the research was accepted for publication), the rate of these disclosures dropped to zero, while the rate of disclosures for offenses that did not require reporting (not involving children) did not drop off during that same period.⁷⁷ This suggests that potentially abused children went unidentified because offenders did not want to disclose their behavior and risk being reported. In addition, the clinic showed that seventy-three self-referred patients who had previous sexual activity with children entered treatment between January 1, 1979 and July 1, 1989.⁷⁸ This rate of about one patient seeking treatment every two months dropped to zero during the following year, suggesting that individuals who would have sought help prior to the enactment of the law no longer sought to remedy their pedophilia for fear of being reported.

THE OPTIMAL DUTY TO WARN AND REPORT

Courts and commentators have mainly taken into account the foreseeability of the risk of the patient to third parties as the most relevant factor to consider when establishing a duty to report or warn.⁷⁹ Courts and commentators have occasionally also considered the chilling effect that imposing such a duty will have on patients' willingness to seek therapy. Still, the optimal scope of the duty to warn is quite different. In order to achieve optimal incentives for both doctors (in treating patients effectively) and patients (in obtaining health and mental care treatment), the likelihood of success in treatment and its impact on the primary behavior of concern should be weighed against the negative deterrent effect such a duty would have on patients' motivations to seek help and its implications for the primary behavior of concern. Thus, for example, if the potential treatment for certain conditions is very effective, and as a re-

76. *Id.* at 451.

77. *Id.*

78. *Id.* at 451–52.

79. Describing the doctrine as imposing a duty solely through foreseeability is inaccurate. Courts also check that a care provider assumes control over a potentially dangerous patient. In *Tarasoff* the California court used a broad version of the “control doctrine.” In New York, the “control doctrine” is narrower than in California. Under New York law, control must be physical rather than psychological, and so a psychiatrist who can commit his patient will have a duty to report, but a psychologist as in *Tarasoff* will not. *See* *Rivera v. N.Y. City Health & Hosp. Corp.*, 191 F. Supp. 2d 412, 417–22 (S.D.N.Y. 2002).

sult the expected social costs associated with the primary behavior of concern are significantly reduced, the duty placed on doctors to report and warn should be relaxed so as to not deter individuals with such treatable conditions from seeking health care, even if the patients still remain very dangerous after the treatment.

The next section presents a simple model that captures the dilemma. The issue can be modeled in a number of ways. One way is to develop a game-theoretical model that provides the equilibrium calculations for decision makers who have to decide whether to seek medical treatment for their condition, considering that they may lose their driver's license if their physician reports them. Such a model needs to specify the utilities of various factors, such as the benefits derived from continued driving and the treatment for the medical problem. These, in turn, depend on numerous factors, including the availability of alternatives to driving (public transportation, a spouse with a license, etc.), the need for a car to access services (inner city residents will need a car less than people living in rural areas), the medical status of the individual, and other factors. Alternatively one can develop a simple decision analytic model that specifies the minimal conditions in which a policy that requires physicians to report medical problems can be beneficial. We adopted this latter approach.

In our model we only deal with the probabilities for accident involvement with and without medical treatment for a medical problem, and with and without the enforcement of the duty to report. We focus on patients' decision to seek care as a function of the duty to report or warn. We hold constant other possible factors that might influence patients' decisions. For example, we ignore the effectiveness of the treatment for reducing accident involvement on patients' decisions to seek care. Also, patients are likely to seek care for many reasons, such as to reduce symptoms, to receive disability benefits, and not necessarily to improve their driving. We also do not deal with any issues that might affect people's tendency to report a medical issue, such as privacy concerns. The model instead focuses on the population and does not address physicians' decisions. For example, physicians might "diagnose" patients as suffering from something other than epilepsy to avoid having to report their patients (either because they want to save the personal inconvenience involved or to protect their patients from losing their driving license). Our model, in contrast, focuses on the impact

of care seeking on accident likelihood. We focus primarily on the impact of the legal duty to report or warn, which is why this is the only moving part in our model.

Thus, we provide an answer to the following question: given the effectiveness of a treatment in reducing accidents among people with a medical problem, what is the maximal chilling effect, after the duty to report is imposed, up to which the law has a positive effect (in terms of reduced probability for a car accidents)? If, for instance, a duty to warn third parties or report patients will only have a positive effect if more than ninety percent of the affected people seek medical treatment, one may want to consider the implementation of the duty with caution. The reason is that the chilling effect stemming from imposing the duty might deter patients from reporting their medical conditions, and as a result the ninety percent threshold will never be met. Alternatively, if imposing a duty has a beneficial effect even where only a relatively small percentage of the affected population seeks medical treatment, the law can more easily be justified, as even a large chilling effect will not offset the benefits of imposing the duty.

We first model the physician's scope of duty to report patients' dangerous driving to the state. Later, we will discuss the implications for the duty to warn in tort law.

A. THE MODEL

Some notations and definitions:

p_A – Probability of accident involvement in the population

p_M – Probability of a particular medical problem in the population

p_{Drive} – Probability that a person with the medical problem will drive (depends on self-regulation)

$p_{Diagnose}$ – Probability of a physician correctly diagnosing the medical problem (depends on uniqueness of symptoms, etc.)

p_C – Probability that a patient will complain about a particular problem

p_{Cne} – probability of a patient complaining when the duty to report is not enforced

p_{Ce} – probability of a patient complaining when the duty to report is enforced

p_N – Probability that a patient will continue to drive notwithstanding license revocation (in the no-enforcement regime we assume all patients drive)

K_t – Increase in accident probability when a person has the disease and receives treatment $p_{A|t} = p_A K_t$ where $1 \leq K_t$

K_{nt} – Increase in accident probability when a person has the disease and does not receive treatment

$$p_{A|nt} = p_A K_{nt} \text{ where } K_t \leq K_{nt} \text{ and } p_A K_{nt} \leq 1$$

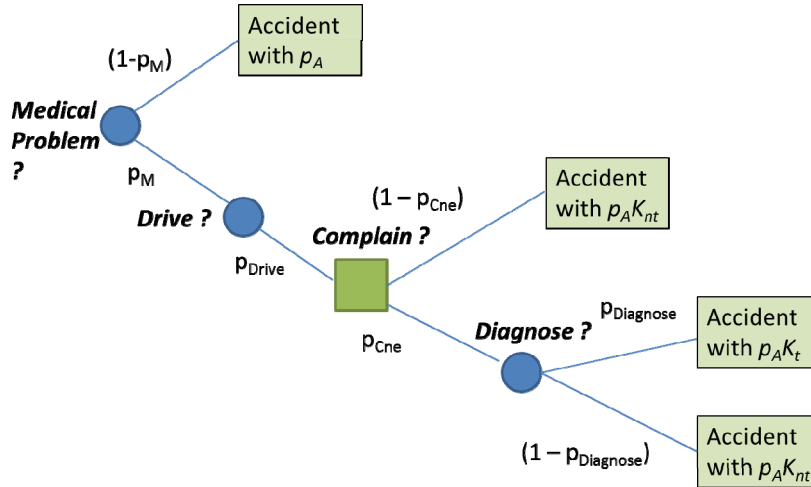


Figure 1: The Model for a Situation without a Duty to Report

According to this model the probability for an accident will be:

$$p_{NoDuty} = (1-p_M)p_A + p_M p_{Drive} ((1-p_{Cne})p_A K_{nt} + p_{Cne} (p_{Diagnose} p_A K_t + (1-p_{Diagnose})p_A K_{nt}))$$

When the duty to report is enforced two parts of the equation change:

1. Instead of p_{Cne} (the probability of a patient complaining when the duty is not enforced) the probability is now p_{Ce} (the probability of a patient complaining when the duty is enforced), with the latter being smaller or equal to the former.

2. The probability of those drivers who complained and were diagnosed as having the medical problem is now p_N , which is the probability that they drive although they were diagnosed with a disqualifying condition. This could be because the physician does not report them, or they decide to drive even though their licenses were cancelled.⁸⁰

80. If we assume that all drivers who will have their drivers' license re-

After these changes the revised model now becomes:

$$p_{Duty} = (1-p_M)p_A + p_M p_{Drive} ((1-p_{Cne})p_A K_{nt} + p_{Cne}(p_{Diagnose}p_A^*p_N + (1-p_{Diagnose})p_A K_{nt}))$$

Equating the two expressions gives:

$$(1-p_M)p_A + p_M p_{Drive} ((1-p_{Cne})p_A K_{nt} + p_{Cne}(p_{Diagnose}p_A K_t + (1-p_{Diagnose})p_A K_{nt})) = (1-p_M)p_A + p_M p_{Drive} ((1-p_{Cne})p_A K_{nt} + p_{Cne}(p_{Diagnose}p_A p_N K_t + (1-p_{Diagnose})p_A K_{nt}))$$

Expanding the expressions and eliminating all joint parts on both sides:

$$p_{Cne}(K_t - K_{nt}) = p_{Cne}(K p_N - K_{nt})$$

Which is:

$$\frac{p_{Cne}}{p_{Cne}} = \frac{K_{nt} - K_t}{K_{nt} - K_t p_N}$$

The minimal probability of people seeking medical attention even when the duty is enforced for the law to have a positive effect is therefore:

$$p_{Cne} = p_{Cne} \frac{K_{nt} - K_t}{K_{nt} - K_t p_N}$$

The expression can be somewhat simplified. For one, we can assume that any legislation will only be meaningful if p_{Cne} is relatively close to 1. If this probability is low, then most people with the medical problem will not be seen by a physician, and the duty to report will have little meaning. Also, we can assume that p_N will be close to 0, i.e., most people who lose their driver's licenses will cease to drive, considering that driving after a license was revoked is a misdemeanor in many states and may lead to fines or jail sentences of various lengths, depending on the state.⁸¹ Assuming $p_{Cne} = 1$ (without the duty to report pa-

voked will indeed stop driving, then it becomes 0; no accidents will occur. Also, the model ignores possible accident involvement as pedestrians.

81. See *Driving While Revoked, Suspended or Otherwise Unlicensed: Penalties by State*, NAT. CONFERENCE OF STATE LEGISLATURES (July 24, 2014), <http://www.ncsl.org/research/transportation/driving-while-revoked-suspended-or-otherwise-unli.aspx>.

tients to the state, *all* patients will complain about their disease) and $p_N = 0$ (all patients whose driver's license was revoked will stop driving), the expression becomes:

$$p_{ce} = \frac{K_{nt} - K_t}{K_{nt}}$$

The maximal chilling effect (i.e. the maximal proportion of people who may fail to report a medical problem in order for the duty to report to have a positive effect) is $1 - p_{ce}$. It is possible to analyze several different cases:

1. $K_{nt} = K_t$: Assuming that the treatment is not effective in preventing accidents, that is, that the increase in accident probability when a person has the disease and receives treatment is identical to the increase when it does not, $K_{nt} = K_t$, then the right-hand side becomes zero, and no matter how big the chilling effect is (how small p_{ce} is), it is always efficient to impose a duty.
2. $K_t = 1$: Assuming that the treatment is so effective that with treatment the disease has no impact on the probability of accidents, then the right-hand side becomes closer to 1 the larger K_{nt} is. Thus, the larger K_{nt} is, the more inefficient it is to impose the duty, even if the chilling effect is small.
3. $1 < K_t < K_{nt}$: Here the answer depends on the values of K_t and K_{nt} . Assuming that the increase in accident probability when a person has the disease and does not receive treatment is fourfold, $K_{nt} = 4$, and the increase when she does receive treatment is twofold, $K_t = 2$, then at least half $[(4-2)/4=.5]$ of the people with the medical problem have to complain about their problem for enforcing the duty to report to have the benefit it purported to achieve: reduction in the probability of accidents. In other words, the chilling effect should not be too large for the duty to be efficient.

Figure 2 depicts the maximal chilling effect of patients complaining about the medical problem for the duty to report to be efficient, assuming $K_t = 2$ and 4.

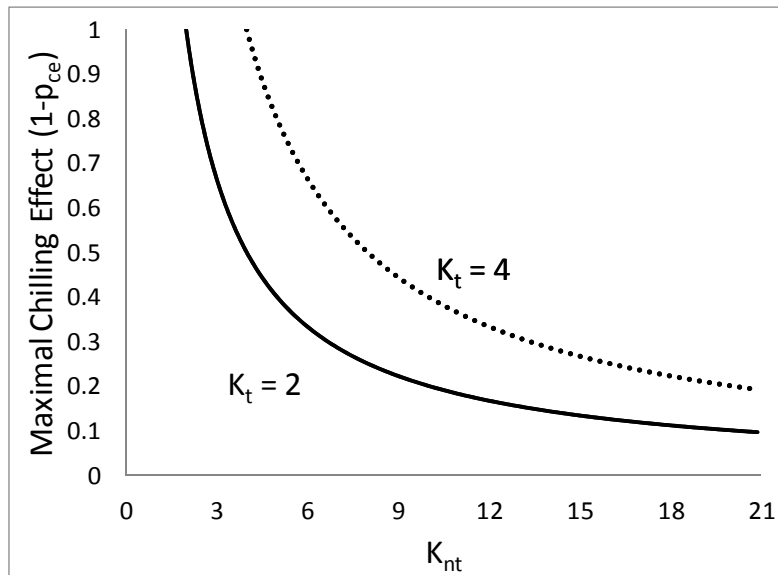


Figure 2: Maximal chilling effect (proportion of people failing to report a medical problem) when the duty to report is enforced as a function of the increase of accident likelihood when the problem is not treated (K_{nt}) for problems that, when treated, increase the accident likelihood two or four times (K_t).

B. APPLYING THE MODEL TO TORT LAW'S DUTY TO WARN

When applying the model to torts, one can easily see that, from a social welfare perspective, whether a doctor should be liable to third parties (the victims of his patient) for not reporting the patients' condition should be negatively correlated with the probability that—as a result of imposing the duty on the doctor—the patient will refrain from receiving treatment. Thus, the availability of effective treatment and its impact on the primary behavior of concern, (together with the chilling effect,) should determine whether a duty should be enforced—not the severity of the medical problem or the dangerousness it implies alone. If dementia is not treatable, while epilepsy is, there is a case on efficiency grounds for imposing a duty to warn identified potential victims of patients with dementia, but to lift it for potential victims of epileptic patients, if all else (specifically the chilling effect) is equal.

But what if the victims are not identified? Recall that the courts in *Lipari* (shooting in the night club) and *Duvall* (driving

with epilepsy) imposed a duty towards unidentifiable victims. On its face, the dilemma and the solution are the same. The only new component here is that the costs and effectiveness of warning should also be part of the calculation. Because warning identified victims (like in *Tarasoff*) is relatively cheap, and can prevent the harm at relatively low costs, it makes more sense (holding all else equal) to impose a duty in cases like *Tarasoff* than to do so in cases like *Lipari* or *Duvall*. For that reason, it makes sense that physicians will satisfy their duty towards unidentified victims in torts if they warn the relevant authorities, even if they do not warn the actual victims.

Duvall and *Lipari* can, however, be distinguished. In *Duvall* the court found that the doctor was negligent towards his own patient (for not warning him to not drive) and the question was whether liability towards the patient should be extended towards the patient's car accident victims. In contrast, in *Lipari* the duty found was directly towards the shooter's victims and not through the patient. Because warning *patients* not to drive does not raise problems of chilling effects, there are better reasons to find the doctor liable to his patient's victims in these cases. For this reason, it is easier to justify *Duvall* than *Lipari*. The same analysis helps explain *Reisner*, where the court found for the plaintiff after the doctor did not warn his patient (the plaintiff's girlfriend) that she had AIDS.⁸²

In contrast, when the doctor does warn his patient about his dangerousness and the treatment is effective, our model suggests that physicians might not have a duty to warn even identified third parties. Indeed, as far as we know, there are no cases where a court has imposed liability on a physician for failing to warn a third party whom the physician knows may have been exposed to HIV by his patient if the patient himself has already been notified.

Lastly, our model implies that in cases where the policy maker does not have good data on the effectiveness of treatment with respect to the primary behavior of interest, such as in cases of psychotherapy, the providers should be left with *discretion* on whether or not to report his patients. The reason is

82. In *Reisner* the victim was identifiable, which makes the case for finding against the doctor even stronger. 37 Cal. Rptr. 2d 518, 519 (Cal. Ct. App. 1995).

simple: the provider is in the best position to weigh both the costs and the benefits of reporting or warning. Accordingly, mental health professionals should be immune from liability for negligence, although perhaps not from gross negligence, both when they warn and when they do not warn the authorities or third parties. *Tarasoff* therefore was wrongly decided.

C. APPLYING THE MODEL TO REPORTING STATUTES

Similarly, in the context of state reporting statutes, whether there should be a duty to report (or whether the statute should be enforced) depends on the context. It might well be more justifiable to impose a duty to report patients with non-treatable conditions than patients with treatable conditions, so that those with treatable conditions will not be deterred from seeking medical help. Methodological difficulties, as well as ethical concerns, make the study of the efficacy of treatment for medical conditions particularly difficult.⁸³ Indeed, empirical evidence is not always available, and may be controversial. Yet, some clear examples for the effectiveness of medical treatment on the primary behavior of concern still exist.⁸⁴

For example, in 2008 Hovinga et al. computed the efficacy of epilepsy treatment at reducing the risk of motor vehicle accidents amongst those suffering from the disease.⁸⁵ The study featured 408 individuals diagnosed with epilepsy and prescribed anti-epileptic medication and classified each participant as either adherent patients (n=298) or non-adherent (n=110) (those who self-reported missing a dose or stopping their medication in the prior month).⁸⁶ The study found that after controlling for confounding variables, the non-adherent participants had a statistically significant increased chance (OR: 1.92, p=0.03, CI: 1.07–3.43) of experiencing a motor vehicle accident due to a seizure.⁸⁷

83. See JUDITH CHARLTON ET AL., INFLUENCE OF CHRONIC ILLNESS ON CRASH INVOLVEMENT OF MOTOR VEHICLE DRIVERS 548 (2d ed. 2010), http://www.monash.edu/__data/assets/pdf_file/0008/216386/muarc300.pdf.

84. See *id.* for studies focusing on the efficacy of medical treatment.

85. See Collin A. Hovinga et al., *Association of Non-Adherence to Antiepileptic Drugs and Seizures, Quality of Life, and Productivity: Survey of Patients with Epilepsy and Physicians*, 13 EPILEPSY & BEHAV. 316 (2008).

86. *Id.* at 319.

87. *Id.* at 319–20.

Similarly, treatment of sleep apnea through continuous positive airway pressure (CPAP) has also been shown to result in a statistically significant decrease in the risk of automobile accidents. Findley et al. found that a group of fifty participants with sleep apnea had on average .07 crashes per person in the two years prior to CPAP treatment, a number which dropped to zero for those who underwent treatment, but remained unchanged for those who did not.⁸⁸ George found similar results when analyzing driving records of a control group and 210 participants who underwent treatment for sleep apnea.⁸⁹ George noted that for the three years prior to CPAP treatment, participants with sleep apnea had a significantly higher crash rate than the control group.⁹⁰ The 182 that underwent continuous treatment subsequently saw their crash rate fall to the same level as the control group, whereas the twenty-seven who were not current CPAP users at the time of the follow-up continued to have a high crash rate relative to the control group.⁹¹

The effectiveness of current cataract treatment at reducing crash risk for drivers suffering from the condition was also evident in a recent study by Owsley et al.⁹² The study compared 174 older drivers who had undergone cataract surgery to 103 older drivers suffering from cataracts who had not received treatment.⁹³ After adjusting for confounding variables, the crash risk ratio was 0.47, indicating an almost 50% reduction after surgery.⁹⁴ Furthermore, the non-surgery group experienced a statistically significant increase in crash prevalence during the follow-up period, compared to the five years prior to the study, whereas the treatment group exhibited a modest, non-significant increase.⁹⁵

88. Larry Findley et al., *Treatment with Nasal CPAP Decreases Automobile Accidents in Patients with Sleep Apnea*, 161 AM. J. RESPIRATORY & CRITICAL CARE MED., 857, 858 (2000).

89. C.F.P. George, *Reduction in Motor Vehicle Collisions Following Treatment of Sleep Apnoea with Nasal CPAP*, 56 THORAX 508, 510 (2001).

90. *Id.*

91. *Id.*

92. See Cynthia Owsley et al., *Impact of Cataract Surgery on Motor Vehicle Crash Involvement of Older Adults*, 288 J. AM. MED. ASS'N 841 (2002).

93. *Id.* at 844.

94. *Id.* at 845.

95. *Id.*

The efficacy of treatment for the aforementioned conditions suggests provisionally that a duty to report imposed on physicians should be relaxed for these conditions. In contrast, there are medical conditions for which treatment has not been shown to improve patients' crash risk. In fact, some studies indicated that treatment may even exacerbate them.

A prime example of this is the case of psychiatric illnesses. Typically these are treated with prescription medication. While methodological issues make it difficult to discern whether elevated crash risk is associated with the condition itself or the prescribed medication, certain drugs used in the treatment of these conditions have been shown to impair driving ability. In the case of depression, research has indicated that cyclic antidepressants are associated with a greater risk of injurious crash involvement,⁹⁷ and that depressed patients receiving long-term antidepressant treatment (SSRIs) suffer significant impairment in their driving abilities as compared to healthy individuals.⁹⁸ Benzodiazepines are the most commonly prescribed medication for anxiety disorders and insomnia⁹⁹ and have been shown to impair vision, attention, and motor skills, among other qualities.¹⁰⁰ Studies have shown that benzodiazepine use generally correlates to increased crash risk, at-fault crash risk,¹⁰¹ and a reduction in overall driving capabilities.¹⁰² The prevalence of benzodiazepine and antidepressant prescriptions and their acknowledged driving-impairing side effects means that individuals suffering from psychiatric illnesses treated with these drugs potentially pose a crash risk and thus, under the model presented in this paper, should potentially be reported, or treated in other ways.

97. Wayne A. Ray et al., *Psychoactive Drugs and the Risk of Injurious Motor Vehicle Crashes in Elderly Drivers*, 136 AM. J. EPIDEMIOLOGY 873, 877 (1992).

98. Marleen Wingen et al., *Driving Impairment in Depressed Patients Receiving Long-Term Antidepressant Treatment*, 188 PSYCHOPHARMACOLOGY 84, 87 (2006).

99. See Wayne A. Ray et al., *Medications and the Older Driver*, 9 CLINICS GERIATRIC MED. 413, 417 (1993).

100. *Id.* at 421–22.

101. See F. Barbone et al., *Association of Road-Traffic Accidents with Benzodiazepine Use*, 352 LANCET 1331, 1334 (1998).

102. James F. O'Hanlon et al., *Anxiolytics' Effects on the Actual Driving Performance of Patients and Healthy Volunteers in a Standardized Test*, 31 NEUROPSYCHOBIOLOGY 81, 85–87 (1995).

Diabetes is another example of a condition for which research has not shown a conclusive lowering of the risk of traffic accidents following treatment for individuals suffering from the disease.¹⁰³ In fact, there is some evidence that diabetes patients treated with insulin may actually have a higher crash risk than those with untreated diabetes.¹⁰⁴ Lave et al. determined that the crash risk for Insulin Dependent Diabetics is 6.1 times greater than the relative crash risk for Non-Insulin Dependent Diabetics.¹⁰⁵ Despite this finding, the jury on the efficacy of treatment for diabetes and its resulting effects on crash risk is still out. Charlton et al., after assessing multiple studies on diabetes and crash risk, determined that the available data is inconclusive.¹⁰⁶ However, if Lave et al.'s findings are accurate and diabetics undergoing insulin therapy are a *greater* crash risk than diabetics not on insulin therapy, then under the model proposed in this paper diabetes should be considered a condition which needs to be reported.

In sum, our model implies that the optimal duty to protect patients' privacy depends on empirical data. A 2010 572-page report by Charlton et al. compiles data from numerous studies separated by relevant condition or illness, where each has a section devoted to summarizing research related to the effect of treatment on crash risk. Our model implies that such data is relevant for physicians, courts, and policy makers in their determinations regarding the optimal scope of a physician's duty.

Lastly, our model implies that when the dangerousness of the primary behavior, K_{nt} , is very high, then the optimal solution might be to enact statutes that effectively increase the likelihood that patients' medical condition is discovered (i.e., to increase p_c). In such cases mandatory checkups (e.g. for pilots) might be warranted. If the treatment is effective, mandatory "checkup" laws will increase safety by curing more patients. If the treatment is not effective, mandatory checkup laws will in-

103. See CHARLTON ET AL., *supra* note 83, at 549.

104. See Larry A. Distiller & Brian D. Kramer, *Driving and Diabetics on Insulin Therapy*, 86 SOUTH AFR. MED. J. 1018, 1019 (1996).

105. Lester B. Lave et al., *Should Persons with Diabetes Be Licensed to Drive Trucks?—Risk Management*, 13 RISK ANALYSIS 327, 330–31 (1993).

106. See CHARLTON ET AL., *supra* note 83, at 549.

crease safety by removing dangerous actors from the public sphere. Indeed, many states have exactly such laws.¹⁰⁷

CONCLUSION

Many who knew Andreas Lubitz were shocked to hear that the quiet, polite, and friendly young pilot was responsible for the death of 150 innocent people.¹⁰⁸ As individuals, his friends, co-workers, and family were understandably limited in their ability to identify red flags and stop Lubitz before he deliberately crashed Flight 9525. As a society, we certainly have the tools to prevent another Germanwings-type disaster. However, any potential solution we engage must concede to the importance of protecting patients' privacy and related interests, namely, personal autonomy, individuality, respect, and human dignity or worth.¹⁰⁹

When discussing the optimal scope of the duty to protect patients' privacy, the literature compares two incommensurable interests: privacy and safety. The approach we take in this paper solves the incommensurability problem. We treat privacy as important because it is instrumental for effective therapy, which in turn reduces patients' risk to society. Thus, we develop a model which finds the optimal balance between protecting patient privacy (as a means to reduce risk in society) and warning third parties or the state (again as means to reduce risk in society).

Our model shows that imposing an unqualified duty to report and warn might result in an *increase* in the dangerousness of the primary behavior society is concerned about, such as piloting, driving, or violent acts. Thus, the chilling effect and the

107. See, e.g., N.J. ADMIN. CODE 16:64-7.4 (2015) (requiring maritime pilots to undergo medical examinations at least annually to check for general health, vision and hearing); WASH. ADMIN. CODE 363-116-120 (2015) (requiring an annual general physical examination).

108. Monica Houston-Waesche & Natascha Divac, *Mystery Surrounds Possible Motive for Germanwings Co-Pilot Andreas Lubitz*, WALL ST. J., <http://www.wsj.com/articles/germanwings-co-pilot-named-as-andreas-lubitz-1427370009> (last updated Mar. 26, 2015).

109. See Edward J. Bloustein, *Privacy as an Aspect of Human Dignity: An Answer to Dean Prosser*, 39 N.Y.U. L. REV. 962, 1000 (1964); Ruth Gavison, *Privacy and the Limits of the Law*, 89 YALE L.J. 421, 438, 455 (1980); Robert C. Post, *Three Concepts of Privacy*, 89 GEO. L.J. 2087, 2092 (2001); Alan F. Westin, *Science, Privacy and Freedom: Issues and Proposals for the 1970's*, 66 COLUM. L. REV. 1003, 1022 (1966).

effectiveness of the medical treatment must be factors that courts should consider in imposing a duty on medical professionals to warn third parties or a duty to report their patients to the state. Interestingly, treatment need not eliminate the risk, nor need it lower the patient's accident risk to that of a person without a medical condition. The formula presented above represents the trade-off at the margin between the benefits of not having a duty (curing the patient and improving his driving, or assisting patients with violent tendencies) and the costs of having a duty (patients refraining from going to doctors and continuing to drive or fly, or patients refraining from seeking mental health care and becoming a danger to themselves and society).

Thus, holding all else equal, the more effective the treatment for a medical or mental health condition is at reducing the danger of the primary behavior, the less society should be willing to impose a duty to report or warn. While the driving or flying ability of an individual with a serious medical condition may be significantly worse than that of an individual with no such medical condition, if the former's driving or piloting ability with treatment is significantly better than without treatment, requiring physicians to report such patients might have an adverse effect. Lastly, whenever it is not clear in advance whether a specific treatment is effective, such as with psychotherapy, providers should be left with discretion whether to warn third parties or report to the state and immune from liability for negligence, although perhaps not from gross negligence.

The decision not to impose a duty to report or warn does not imply that society should not *encourage* people to report their medical problems. Rather, other policy measures, besides enforcing the duty to report or warn, can be used, such as providing people with benefits when reporting, creating social pressure to report, and lowering the negative consequences from reporting the problem (e.g., in the case of driving, by providing alternative transportation solutions). These steps are likely to have desired effects without the negative consequences that may arise from enforcing the duty to report or warn.